



# Capabilities Documentation for Redfish Resources

Redfish Forum – Work in progress  
May 2020



## Disclaimer

- The information in this presentation represents a snapshot of work in progress within the DMTF.
- This information is subject to change without notice. The standard specifications remain the normative reference for all information.
- For additional information, see the DMTF website.





## Providing Feedback

- Feedback to the DMTF Redfish Forum is encouraged
  - Submit items using the DMTF feedback portal
  - <https://www.dmtf.org/standards/feedback>
- Questions and comments can be posted on the Redfish User Forum
  - <https://www.redfishforum.com>





## Problem Statement

- Large numbers of settings make it difficult for users to select the correct ones
- Different hardware can have different settings that will work best under different use scenarios
  - Applies to many resources, including processors, networking, storage
  - Want a common solution that is not specific to any resource
- Misconfigurations lead to support calls, customer frustration
- Need a way to communicate recommended settings to end users
- Need to make it easy to select “standard” settings
- Need to separate settings metadata from regular data – don’t flood users with extra data with every read
- Want to express intra-resource dependencies in a coherent fashion
- Limit use of annotations, they don’t work well with many languages



## Proposal: Capabilities Object

- Shadow of a regular resource
- Documents explicitly:
  - Supported settings
  - Recommended settings
  - Default settings
  - Supported use cases
  - Overrides to recommended settings based on use cases



## Capability objects: document form

- gzip'ed JSON blob
- Retrievable on demand
- Stored in standard location: `/redfish/v1/capabilities`
  - RDE: retrieved via new command (GetResourceCapabilities)
  - Separate documents for different device manufacturers, firmware/HW versions to enable support for multiple concurrent devices in the same system
- Document title stored in targeted resource

## Additions to Resources

- New fields (below, from Mockup):

```
"SupportedUseCases": [
```

```
  "FCoE",
```

```
  "Telecom"
```

```
]
```

```
"CurrentUseCase": "none",
```

```
"CapabilitiesDefinition": "ExampleResource.Contoso.CheesyAdapter"
```

Named use cases supported by resource

Currently selected use case; writing effects all recommendations for use case

Capabilities Document name



## Capabilities: Document version fields

- Modeled after interoperability profiles

```
{
  "SchemaDefinition": "ResourceInfo.v1_0_0",
  "CapabilityName": "ExampleResource.Contoso.CheesyAdapter",
  "Purpose": "This is sample capabilities information for an
    ExampleResource.",
  "OwningEntity": "Contoso",
  "ContactInfo": "mozzarella@contoso.com",
  "Name": "ResourceInfo for ExampleResource",
  "ActionData": { "///1" : "ActionInfo stuff here" }
  "GlobalCapabilities" : { "///2" : "Top-level stuff here" }
  "ResourceObjects": [ "///3" : "Property-specific stuff here" ]
}
```





## Capabilities: GlobalCapabilities

From Allow header

```
"GlobalCapabilities" : {  
  "AllowedAccess": ["read", "replace", "update", "create",  
    "delete"],  
  "SupportedUseCases": [  
    "FCoE": "FibreChannel over Ethernet implementations",  
    "Telecom": "Telecommunications networking with DPDK"  
  ]  
},
```

Named, schema-defined use cases; also implicitly:  
“default”: schema-specified defaults  
“none”: settings don’t match a defined use case



## Capabilities: ResourceObjects

Name of schema object

```
"ResourceObjects": [  
  "ExampleResource.ExampleResource": {  
    "ObjectProperties": [  
      "MTU": {  
        "DisplayName": "Maximum Transfer Unit",  
        "Writable": true,  
        "TimeRequiredToApply": "Immediate",  
        "AllowableValues": [256, 512, 1024, 2048, 4096, 8192,  
                           16384],  
        "DefaultValue": 2048,  
        "MinimumRecommendedValue": 2048,  
        "MaximumRecommendedValue": 8192,  
      },  
    ],  
  },  
],
```

Human readable version of property name

Values supported by implementation

Values recommended with implementation



## Capabilities: ResourceObjects ctd.

```
"ResourceObjects": [  
  "ExampleResource.ExampleResource": {  
    "ObjectProperties": [  
      "MTU": { ... }  
      "ConnectionName": {  
        "DisplayName": "Name of Connection",  
        "Writable": true,  
        "TimeRequiredToApply": "OnReset",  
        "DefaultValue": "Connection_15",  
        "PatternRequirement": "^[a-zA-Z_][a-zA-Z0-9_]*$",  
        "RecommendedSetting": "Connection_15"  
      },  
      "FirmwareData": {  
        "DisplayName": "Firmware Data",  
        "Writable": false,  
        "ObjectName": "ExampleResource.FirmwareData",  
      }  
    ]  
  }  
]
```

String format requirement

Nested object support

## Capabilities: Use Case Overrides

```
"ExampleResource.FirmwareData": {  
  "ObjectProperties": [  
    "AllocatedQueues": {  
      .../  
      "MinimumRecommendedValue":12,  
      "MaximumRecommendedValue": 18,  
      "UseCaseOverrides": [  
        "FCoE": {  
          "MaximumRecommendedValue": 15,  
          "Default": 12  
        },  
        "Telecom": {  
          "MinimumRecommendedValue": 16,  
          "MaximumRecommendedValue": 32,  
          "Default": 24  
        }  
      ]  
    }  
  ]  
}
```

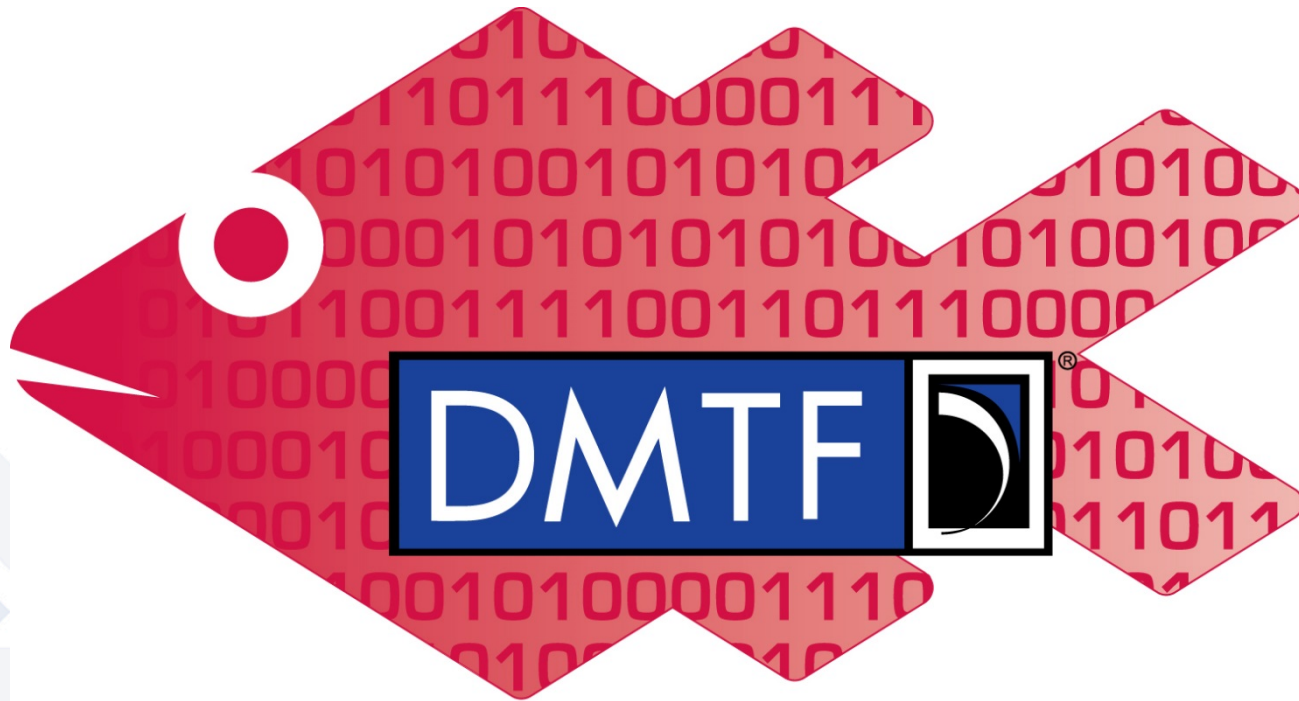
Overrides default  
recommendation

Different use cases can  
have different overrides

Defaults can change for  
different use cases



## Q&A & Discussion



# Redfish